

**MULTI-AGENCY RADIATION SURVEY AND SITE INVESTIGATION
MANUAL (MARSSIM) WORKGROUP MEETING NOTES – DRAFT**

MONDAY, FEBRUARY 14, 2005

ATTENDEES:

U.S. Environmental Protection Agency - OSWER/ERT-West: C. Petullo
U.S. Environmental Protection Agency - Headquarters: K. Snead
U.S. Environmental Protection Agency - Headquarters: L. Bender
U.S. Environmental Protection Agency - Region II: N. Azzam
U.S. Nuclear Regulatory Commission - RES: R. Meck
U.S. Nuclear Regulatory Commission - RES: J. DeCicco
U.S. Nuclear Regulatory Commission - RES: G. Powers (by phone)
U.S. Air Force: R. Bhat
U.S. Air Force: Major C. Bias
U.S. Navy: S. Doremus
U.S. Army: D. Chambers

MEMBERS OF THE PUBLIC:

Cabrera Services, Inc.: S. Hay (U.S. Air Force contractor)
Cabrera Services, Inc.: N. Berliner (U.S. Air Force contractor)

DISCUSSION

C. Petullo welcomes the work group to the MARSSIM work group meeting. D. Chambers is introduced as the new lead for the U.S. Army. Introductions to work group members are made around the room.

C. Petullo mentions that Chapter 2, Rev. 8 (“interim” Rev. 8) is based on Rev. 7 with re-ordering of sections following the December work group meeting.

AGENCY UPDATES

K. Snead discusses that ORIA is looking at working with EPA Region V (5) FIELDS team for MARSAS, featuring SADA three-dimensional-modeling. The project includes joint data sharing between FIELDS and SADA, and it ensures the data formats remain compatible for both FIELDS and SADA. K. Snead also discusses glitches on the website that were pointed out by R. Meck have been corrected: the software automatically re-ordered the website’s technical FAQs by the number of hits they received, but now they have been restored to place the questions in the appropriate order, and the figure has been restored as well. She noted that other problems may arise, and requested that the work group continue to review the site for other issues.

37 C. Petullo discusses funding for INEEL on MARSAS is being pulled back for work on
38 MARSAME. The funds will be directed to the U.S. Air Force for allocation by May 31,
39 2005.

40 N. Azzam discusses MARSSIM being applied to MARSAS issues, "MARSSIM for
41 Subsurface Soil," and that it is working effectively. The process involves historical site
42 assessment, to scope, to characterization (downhole gamma logging is used to create and
43 classify survey units), to remediation, to final status survey. C. Bias cautions that this
44 work should not be related to the term MARSAS yet.

45 L. Bender has no comments, which concludes EPA's opening comments.

46 R. Meck thanks the work group for efforts with regards to the SADA/FIELDS website,
47 and appreciates EPA's role in maintenance, stressing that multi-agency support is key.
48 He notes that SADA incorporates MARSAME principles, but wants to know what the
49 work group can do to now re-invent the wheel with regards to SADA. K. Snead indicates
50 that EPA may need to plan on FIELDS updates to keep it compatible with SADA.

51 R. Bhat describes 19 impacted acres at Kirtland (Kirkland?) AFB, and how MARSSIM
52 worked very well for the characterization. The work was finished six months ahead of
53 schedule, and two million dollars in excess funding was then returned to the U.S.
54 Treasury Department. He then discusses the discovery of Pu in a dump at McClellan
55 AFB. The Air Force was unable to determine if the Pu constituted 91B material. The
56 site was treated as a joint CERCLA/NRC (NRC per NUREG-1757) site, all the soil was
57 removed, and the Pu was donated to MIT. The NRC wants to perform a FSS to terminate
58 the materials license, and the Air Force is developing a new process for investigating
59 multi-agency sites like this one.

60 C. Bias discusses the BOMARC site, where Pu contamination is being addressed and
61 remediated for residential release. Approximately 190,000 cubic yards have been
62 removed, but more Pu is being located in unexpected areas. The issue pertains to the
63 particulate nature of the Pu, as averaging and sampling are not proving useful for
64 adequate characterization, and that static samples are unable to detect the particles - the
65 limits are MARSSIM are being pushed at this site. The Air Force plans to scan 100% of
66 the 90-acre site utilizing large-area scintillators, and a DOE remote-sensing lab from Las
67 Vegas is coming in to assist with the characterization. C. Bias thanks S. Hay and Cabrera
68 Services for their assistance with this and other technically-challenging sites.

69 S. Doremus discusses the release of M&E at Hunter's Point Naval Ship Yard using Reg.
70 Guide 1.86. The facility consists of a six-story, one square-block building, though not the
71 entire building floorplan is impacted. The vast quantities of M&E at the site create a
72 daunting task in assessment via CERCLA. S. Doremus requests manuals (SOPs) for
73 M&E clearing be assembled and included in the documentation, though the extent of
74 documentation necessary is not certain. How much of the IA requires documentation?
75 For example he describes documentation pertaining to Cs-contaminated-soil being
76 excavated using a backhoe, and the fact that the excavation and soil itself were well-
77 documented, while there was no accompanying documentation on the backhoe itself. R.

78 Bhat asks about how the Navy decommissions ships; S. Doremus responds that the
79 reactor is cut out and removed, and other affected portions of the ship's interior are
80 stripped out.

81 D. Chambers describes his role, how Congress transferred FUSRAP cleanups to the
82 USACE in 1997, and that his support for the foreseeable future comes from USACE. He
83 notes that he implemented MARSSIM back in 1998, how he aims to do an appropriate
84 level of survey effort on land and buildings, and extends MARSSIM into the subsurface
85 where appropriate.

86 J. DeCicco discusses what the NRC is calling the proposed "new rule" for control and
87 disposition of solid M&E, which will be MARSAME-compliant. He is helping develop
88 and document this NUREG guidance for implementation of the "new rule." This new
89 rule deliverable should in NRC review by the end of March 2005, and if approved it will
90 be issued as a proposed rule. This rule would require decommissioning regulatory
91 documentation similar to the regulations pertaining to real property under MARSSIM. R.
92 Bhat asks J. DeCicco/R. Meck how to apply this proposed rule with respect to NUREG-
93 1761. J. DeCicco responds that this proposed rule will not be as technical as NUREG-
94 1761. He adds that NUREG-1761 was re-issued in 2004, though the version available on
95 the NUREG website is the 2002 draft version. The proposed rule may be issued in two to
96 three months if it is well-received by the NRC reviewers, though it may take indefinitely
97 longer. R. Meck notes that the content of the new rule cannot be discussed in detail until
98 it is officially proposed. He adds that the NRC may not issue the proposed rule for three
99 to six months, and that it may take even longer as complicated, controversial rulings
100 require lengthier review periods. R. Meck adds that two new commissioners have been
101 appointed to the NRC, and that they only have two-year terms (as opposed to five-year
102 terms) because they have not yet been confirmed by the U.S. Senate. These new
103 commissioners will probably result in delays to the release of the proposed rule. R. Meck
104 notes that funding is being sought to keep contractual support, and he is optimistic about
105 "seamless funding," similar to MARSAME for this proposed rule.

106 R. Meck brings an administrative issue to the table, requesting better version control of
107 the contractor deliverables, that knowing what to review and when is a problem. He adds
108 that the work group members should be more prepared for the meetings, having
109 commented on the deliverables prior to meetings, and coming to the meetings ready to
110 discuss them. C. Petullo agrees, stating that since the last meeting, Cabrera has been
111 meeting the deliverables schedule, and that the work group needs to stay on top of their
112 obligations to review the documentation. She suggests that it may be necessary to revise
113 the schedule, and that at the end of the meeting the work group will discuss what it can
114 realistically achieve, and set a realistic schedule accordingly.

115 INTERAGENCY STEERING COMMITTEE ON RADIATION STANDARDS 116 (ISCORS)

117 C. Petullo moves the topic of discussion to the ISCORS meeting, occurring March 17,
118 2005. C. Petullo indicates that she will attend the meeting and provide and then update to
119 the work group. She indicates that she would like to rotate the responsibility of work

group attendance and briefings at ISCORS meetings among the agency leads, beginning with the local representatives (i.e., K. Snead, R. Meck, R. Bhat). The break down of eight agencies divided by quarterly meetings means that each agency lead will have to attend one ISCORS meeting every two calendar years. The work group agrees with this plan.

C. Petullo moves discussion to the topic of signing the revised MARSAME charter. She notes that A. Williams had contacted her regarding minor revisions to the charter (specifically, the addition of three or four words) about a week before the meeting, but that the review period was December and January, so this change will not be incorporated into the charter. C. Petullo then contacted A. Wallo regarding this, who took blame for A. Williams' tardiness regarding reviewing the charter. A. Wallo then provoked a heated discussion with C. Petullo pertaining to the work group's prejudicial behavior towards A. Williams and DOE changes and comments. The discussion was summarized by A. Wallo agreeing to have A. Williams sign the revised charter. The work group agrees that all agency representatives present will sign the charter, that the charter will be transported to A. Williams via courier for his signature, and that it will then be sent on to C. Gogolak for his signature.

CHAPTER 2

Work group discussion moves to Chapter 2. C. Petullo asks if terms in Latin (i.e., "in toto," and "in situ") should be italicized. S. Hay responds that the GPO style guide was consulted, and indicates that the latest version of the guide directs italics to be used only for emphasis, not for foreign words. K. Snead comments that figure captions should be in the font Arial, not Times New Roman.

The work group discusses the need for documentation. The work group reinforces the importance that the MARSAME process must not be burdensome. The default is no documentation, but this could be problematic. N. Azzam and C. Bias stress that the decision of impacted/non-impacted needs documentation supporting the decision-making process involved with the M&E in case the decision is wrong. If you make an incorrect categorization decision, you need to discuss the consequences of a wrong decision, and decide what is required (e.g., plans, documentation). Related to the idea of an error of omission, i.e., if the documentation reviewed for the IA fails to mention some thing, you are left with two choices: non-impacted or missed. K. Snead and C. Bias suggest a documentation requirement of the HSA and IA. R. Meck counters with a graded approach, suggesting that no documentation is required for M&E that requires no action. Several work group members note on this point that this will affect where the impacted/non-impacted decision falls in the document. R. Meck notes that in its current format, Chapter 2 makes the decision of impacted/non-impacted too late in the text. The term non-impacted should not be mentioned after Section 2.2.

S. Hay summarizes that the default remains no documentation for non-impacted M&E, but that non-documentation may affect decision errors. Documentation should not be necessary, but it should be noted to be advisable/prudent. The work group moves to the decision that in lieu of text stating "no requirement," language will instead be included in the introduction stating "it is not necessary, but in certain cases it may be beneficial to

162 discuss support of your non-impacted decision,” and then state consequences of not
163 documenting.

164 A Chapter 2 revision comment by S. Doremus from the web site brings up the issue of
165 ROPCs versus ROCs, i.e., the initial versus final list of radionuclides of concern.
166 Chapter 2 states the list of radionuclides of concern may be expanded, reduced, or remain
167 the same based on the results of preliminary surveys. C. Petullo tables discussion on this
168 issue.

169 Discussion moves to the topic of sentinel measurements. The need for sentinel
170 measurements is reviewed, i.e., if you are unsure if the M&E is impacted then it should
171 be Class 3, if for some other reason then it may support categorization (administrative,
172 regulatory, political). R. Meck notes that if the IA supports a non-impacted decision,
173 then sentinel measurements can serve as supplementary information. K. Snead
174 comments that it is important to state what supporting evidence might look like. C. Bias
175 clarifies that at this point in the MARSAME process, the IA is only partially complete,
176 and that it is important to describe how the impacted/non-impacted decision was reached
177 (i.e., what was looked at to support a decision and what specifically formed the basis for
178 the decision that was made). The work group agrees.

179 The work group briefly revisits the discussion of encouraging documentation without
180 being burdensome. C. Bias comments that excessive trust may be placed in people if you
181 don’t explicitly instruct them to document their work. C. Petullo poses the question of
182 how then you find a happy medium detailing when it is prudent to provide
183 documentation? R. Meck responds that unfortunately, you have to be safe and create
184 supporting documentation. S. Hay summarizes that it ultimately is at the discretion of the
185 site owner and their willingness to provide the necessary budget to accommodate
186 thorough documentation. Work group consensus.

187 There is brief work group discussion regarding sub-headings. The work group agrees
188 that MARSAME will not go beyond “heading 4” sectional sub-divisions (e.g., 2.4.3.1
189 would be a “heading 4” sectional sub-division).

190 A general comment by C. Bias addresses the chapter and title headings as a consistency
191 issue pertaining to Chapters 2 and 4. Should the chapter and title headings begin with
192 verbs (i.e., be descriptive of action), as in Chapter 2? S. Hay responds that structuring is
193 typically broken into verbs at certain levels to promote user-friendliness. C. Bias adds
194 that these headings can follow flowcharts and questions provided in the upcoming
195 MARSAME roadmap to further promote user-friendliness. The work group likes this
196 format, and the decision is made to make Chapter 4 chapter and title headings consistent
197 with Chapter 2.

198 The work group then moves into discussion of an email hand-out from C. Bias.
199 Discussion starts with the following proposed reordering of the seven IA activities,
200 including the removal of segregation and selection of disposition options:

201 1. Review existing information.

202 2. Conduct VI, review HR, assess PK, and perform sentinel measurements as
203 needed.

204 3. Decide whether M&E are impacted. If non-impacted, document decision.

205 4. Develop preliminary description of impacted M&E.

206 5. Design, implement, document and evaluate preliminary surveys, as needed, for
207 impacted M&E.

208 6. Finalize description of impacted M&E.

209 7. Document IA for impacted M&E through SOP or CM.

210 K. Snead address concerns over C. Bias' proposed revisions to the tables of contents for
211 Chapters 2 and 3, stating that D. Caputo (who is not here) assembled the current tables of
212 contents for these chapters. C. Bias responds that all prior input has helped him reach
213 this current understanding of the structure of the document, and he reassures C. Petullo
214 regarding the amount of work needed in Chapters 2 and 3 to carry out his proposed
215 revisions. The work group decides they approve of his proposed changes.

216 R. Meck addresses a concern over the complicated variables swirling around the issue of
217 segregation: impacted versus non-impacted, solid versus liquid, accessible versus
218 difficult-to-access. The work group states that the issue is appropriately divided into
219 impacted versus non-impacted, and then accessible versus difficult-to-access is addressed
220 for impacted M&E.

221 In discussing the five questions C. Bias generated in reviewing Chapters 2 and 3, the
222 work group ultimately determined that it agreed with all five of his proposed formatting
223 changes (please refer to this email, entitled "Topics for discussion next week" dated
224 2/9/05):

225 1. Segregation and selection of disposition options will be shifted from Chapter 2
226 into Chapter 3, as suggested.

227 2. The term "disposition" does not apply to non-impacted M&E.

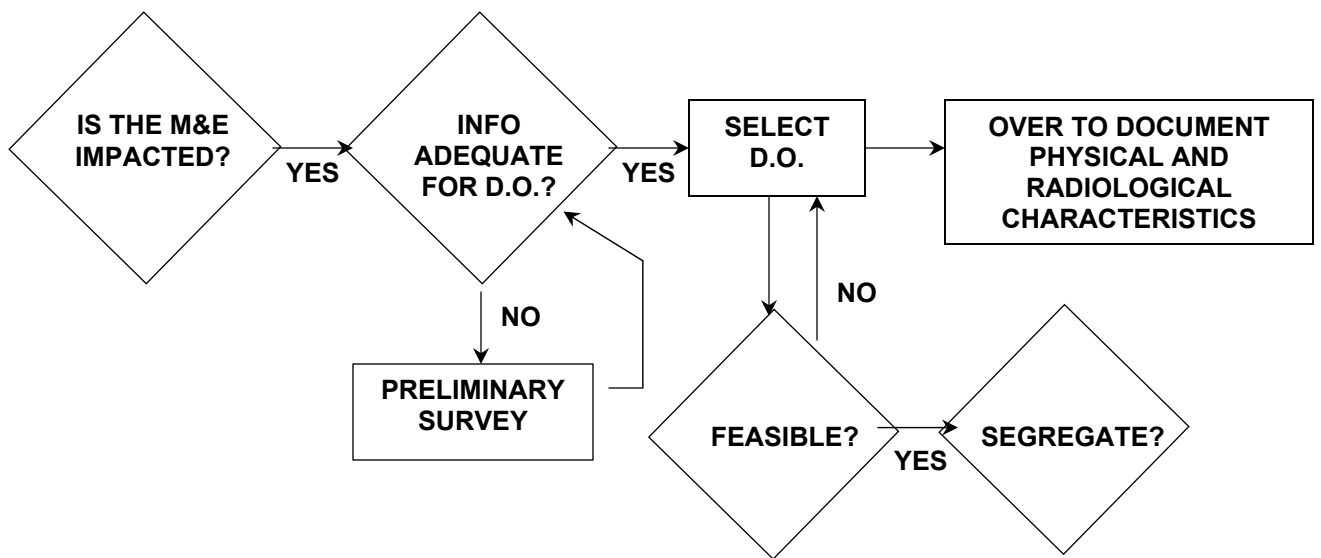
228 3. Non-impacted decisions should be documented, even though it is not required
229 (discussed previously in this minutes document).

230 4. "No action" (option #11) removed as a potential alternative action from Section
231 2.7.

232 5. Segregation will switch places with selection of the disposition option, so that
233 selection of the disposition option occurs prior to segregation.

234 The work group sticks on the point of segregation prior to selection of the disposition
235 option. S. Doremus revisits the notion of having someone spend time documenting an
236 IA, when a simple impacted/non-impacted decision would have been easy and
237 appropriate. G. Powers notes that C. Bias intends to make the process logical and easy to
238 get in and back out again with his proposed changes to the structure of Chapters 2 and 3,
239 yet S. Doremus again outlines the flaw in this cumbersome process. D. Chambers echoes
240 this concern. K. Snead responds that if the existing info is adequate for survey design,
241 you can cut out several subsequent steps. C. Petullo poses the question of whether
242 inherent value needs to be introduced earlier in the document? C. Bias responds that the
243 IA concept should be put aside, and that description should simply follow the simple

impacted/non-impacted decision – this constitutes the driving force for classification and description. He continues by posing the question what information is necessary to select a disposition option?



All that is needed is the simple impacted/non-impacted decision and a determination of whether there is adequate information to select a disposition option. C. Bias comments that confirming the revised flowchart for Chapters noted this afternoon should help finish the shaping of Chapter 2. K. Snead reiterates that today we've decided we want to move the detailed description of the M&E to the end of the IA, and stresses the importance of establishing the flowchart revised this afternoon in the interest of getting Chapters 2 and 3 written to prevent having to jump between these two chapters in the MARSAME process.

All sections in Chapter 2 need to explicitly state that segregation may not be needed in all cases. Chapter 2 or (or perhaps Chapter 3) will discuss the potential for segregation to aid in survey design, and Chapter 5 will actually implement segregation.

C. Petullo asks C. Bias and S. Doremus to revisit their discussion this evening and establish a new flowchart. Discussion of this new flowchart should be done tomorrow morning, and should take up no more than one hour.

ADJOURN

Meeting Date: February 15, 2005
Date Prepared: March 1, 2005

**MULTI-AGENCY RADIATION SURVEY AND SITE INVESTIGATION
MANUAL (MARSSIM) WORKGROUP MEETING NOTES – DRAFT**

TUESDAY, FEBRUARY 15, 2005

ATTENDEES:

U.S. Environmental Protection Agency - OSWER/ERT-West: C. Petullo
U.S. Environmental Protection Agency - Headquarters: K. Snead
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U.S. Air Force: Major C. Bias
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U.S. Army: D. Chambers

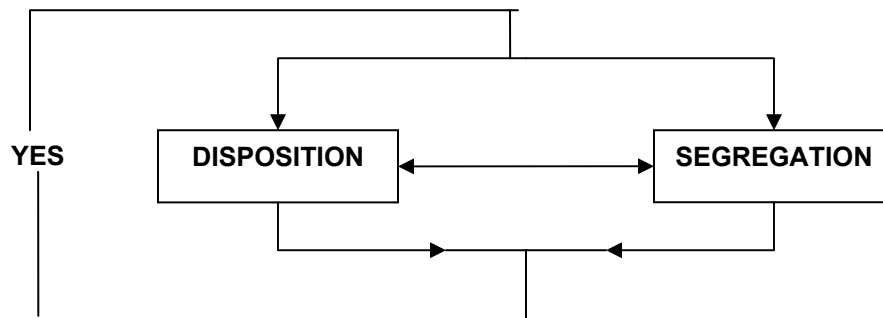
MEMBERS OF THE PUBLIC:

Cabrera Services, Inc.: S. Hay (U.S. Air Force contractor)
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DISCUSSION

The work group begins by examining the new flowchart provided by C. Bias. Some minor edits are addressed with regards to clarifying the new flowchart. Of significance is the addition of the inherent costs associated with disposition to the flowchart as suggested by D. Chambers. Discussion continues on to other topics.

Discussion returns to the issues surrounding the order of segregation and selection of the disposition option(s). N. Azzam puts a flow diagram on paper, illustrating how sometimes you segregate and then select a disposition option, and sometimes vice versa.



300 R. Meck critiques that there should be guidance to the MARSAME user on how to
301 determine which to do first in a given situation. D. Chambers notes that the boxes above
302 should read:

- 303 • Select disposition options, considering segregation options.
- 304 • Select segregation options, considering disposition options.

305 The work group agrees with D. Chambers' changes. S. Hay and K. Snead remark that
306 segregation will resurface and play into the MARSAME process over and over
307 throughout the document. Ultimate placement of this section in the document is
308 ambiguous, difficult to pinpoint. N. Azzam and S. Hay provide an example of how
309 mixed metal and wood can be disposed together, but would require segregation prior to a
310 recycling scenario.

311 CHAPTER 4

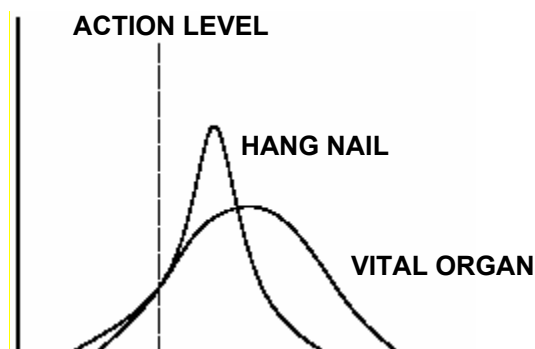
312 N. Azzam and R. Meck comment that "discrimination limit" (DL) should added to the
313 glossary as a new term. S. Hay notes that this is a MARLAP term. DL is further
314 discussed, and it is noted that it's definition represents different portions of the grey
315 region depending upon the scenario:

- 316 • The DL is the LBGR in Scenario A
- 317 • The DL is the UBGR in Scenario B

318 S. Hay also notes that C. Gogolak previously noted a differentiation between Scenario A
319 in NUREG-1505 and MARLAP. K. Snead responded that the work group has to go
320 along with the definition that conforms with MARLAP – S. Hay added that if the
321 MARLAP approach is more confusing than that contained in NUREG-1505, this would
322 be flushed out during the public review period.

323 CONSEQUENCES OF DECISION ERROR TUTORIAL

324 R. Meck proceeds with a tutorial on decision error. R. Meck provides a handout entitled
325 "Consequence of Type I or Type II Errors." He begins with a statement regarding a 95%
326 confidence level. This means 95% chance of being correct, and a 5% chance of being
327 incorrect, is expected. He differentiates between a power curve for a hang nail, and a
328 similar curve for a vital organ.



329

330 Both involve the same 95% confidence level, yet their decision error consequences
331 represent drastically contrasting levels of severity during the same 5% interval. He
332 explains that if you set your limit at four times the action level, and the initial standard
333 deviation is 2.4, then you obtain a 10% type I decision error. But, if your initial standard
334 deviation is 0.4, then you drop your type I decision error to 1.5%. These contrasting
335 power curves underline the importance of the standard deviation in limiting the severity
336 of the decision error, independent of the decision error rate. He concludes that you need
337 to know your standard deviation in conducting a final status survey, and that we have the
338 opportunity to provide guidance where there is currently none. C. Petullo is a little
339 unsure what to do with this information; D. Chambers indicates that this provides
340 additional input to the MARSAME reader on decision error considerations.

341 The work group returns to discussion of Chapter 4. The work group discusses the default
342 classification for M&E when no information is available as Class 1 under MARSSIM –
343 does this apply to MARSAME as well? C. Petullo, R. Meck, K. Snead, and D. Chambers
344 discuss an example of 100 cargo ships wanting entrance to U.S. waters, each with 50
345 crates of cargo. How does the Coast Guard go about deciding what to survey? R. Bhat
346 poses the question of what initial information is available? The scenario is detailed that
347 all containers are the same, and that the first container surveyed has hits. All 50
348 containers on that ship are considered Class I, you establish each container as a Class I
349 survey unit, and you survey them all individually based on the one impacted container.

350 **ACTION ITEM:** C. Petullo asks N. Azzam to contact Ed Levine from the New York
351 Coast Guard and have him review MARSAME for applicability to their practices.

352 The work group discusses C. Bias' comment on line 162, in which he questions the
353 notion that M&E that have been cleaned to remove residual radioactivity are generally
354 considered to be Class 1. He questions why it can't be Class 2. The text then states that
355 "An exception to Class 1 classification may be considered if there are no difficult-to-
356 access areas and any residual radioactivity is readily removable using cleaning
357 techniques." S. Doremus, R. Meck, and S. Hay respond that cleaned/remediated
358 equipment is automatically Class 1, and that this exception should be removed. C. Bias
359 counters that although the work group wants this removed now, it created this notion, and
360 has already revisited it having decided to keep it in the document. S. Doremus, R. Meck,
361 and S. Hay respond that the classification system describes the level of scrutiny involved
362 with the final status survey – revisiting M&E previously cleaned/remediated and
363 performing a Class 1 survey constitutes the "final exam" for residual radioactivity. In
364 addition, information that a given piece of M&E was cleaned/remediated supercedes all
365 other information and the M&E is Class 1.

366 **ACTION ITEM:** C. Petullo and V. Lloyd to locate language in the minutes from a
367 previous meeting that if M&E goes into cleaning/remediation as Class 2 or 3, it can then
368 receive a final status survey as Class 2 or 3 M&E.

369 The work group discusses comments by K. Snead and N. Azzam pertaining to line 206 in
370 the text, with reference to theoretical M&E exhibiting Class 1 maximum total surface
371 activity and Class 3 average removable surface activity. The work group reinforces that

372 in this instance with action levels pertaining to each type of residual radioactivity the
373 most stringent of action levels must be applied and that the survey unit cannot be split for
374 fixed versus removable activity, or else S. Hay advises that another source of action
375 levels be selected.

376 A comment by K. Snead outlines an additional difference between Class 2 and 3 survey
377 units with regards to scan-only surveys, namely that Class 2 survey units should include
378 random areas as well as biased scanning coverage to promote uniform coverage of a
379 given survey unit. In contrast, Class 3 surveys would not necessarily include surveying
380 in biased locations. This provokes discussion revisiting the definition of Class 3 as
381 defined in MARSAME, i.e., that you believe the material is non-impacted, but lack
382 sufficient data/information to explicitly say so. R. Meck and K. Snead note that the 10%
383 or less survey coverage for Class 3 survey units is arbitrary, and revisits C. Gogolak's
384 inability to determine a statistical basis for survey percent coverage. R. Meck states that
385 factors such as process knowledge, source history, etc. should be considered in
386 determining the percent scan. He does not agree that the current language describing
387 Class 3 scan-only surveys in Chapter 4 (lines 272 to 274) is sufficient, and requests an
388 additional sentence qualifying the percent chosen be added to the text. The work group
389 agrees this change will be acceptable.

390 **ACTION ITEM:** C. Gogolak to examine language in Section 4.4.3, line 341, and
391 determine if 30% of the mean or 1/6 of the DCGL is appropriate for the calculating the
392 standard deviation. Currently, the text states 30% of the mean, which is potentially a
393 mistake dating back to MARSSIM guidance.

394 Work group discussion moves into area factors (starting at line 343). R. Meck notes an
395 inaccuracy contained in the language "area factors of infinity" as noted in line 347. He
396 clarifies that infinite area factors do not allow the MARSAME user to "dilute" high-
397 concentration hotspots into largely non-impacted masses, but rather grants limited non-
398 prescriptive flexibility for inhomogeneities of radioactive concentrations in the course of
399 usual processing. K. Snead requests that a discussion of area factors be included in
400 MARSAME. R. Bhat contributes that RESRAD calculates area factors based on dose,
401 and that the maximum allowable is three times the <blank>. D. Chambers adds that area
402 factors are dose-/risk-based, and S. Hay concludes that there is no technical basis for an
403 area factor in MARSSIM. The work group agrees that a default area factor of one is to
404 be used, otherwise a ratio of a hotspot to the average for the survey unit is to be
405 calculated.

406 Discussion moves into Section 4.5, Disposition Survey Design Documentation. R. Meck
407 states that he has issue with the language "complete record," in line 424. S. Hay poses
408 the question of how to document the number of measurements in a given survey unit, and
409 the number of survey units without constituting a complete record. K. Snead echoes S.
410 Hay's question with regards to a survey design. N. Azzam moves into a question
411 regarding an SOP for a screwdriver documenting how many measurements to take. C.
412 Petullo indicates that you break the SOP into the who, what, when, where, why, and how.
413 S. Hay adds that what defines the survey unit, and how much defines the percent to
414 survey. R. Meck and C. Petullo suggest that a survey design incorporate the who, what,

415 when, where, why, and how, and that current SOPs can be compared to MARSAME
416 DQOs to certify their validity. Related to this topic, S. Hay addresses R. Meck and K.
417 Snead comments from line 549, making the distinction that there are repetitive routine
418 surveys, and non-repetitive routine surveys. He states that a machine could be
419 programmed to conduct repetitive routine surveys, but that a person would be required to
420 complete non-repetitive routine surveys. Both R. Meck and K. Snead feel their
421 comments have been addressed by this explanation.

422 ADJOURN

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Meeting Date: February 16, 2005
Date Prepared: March 22, 2005

425 **MULTI-AGENCY RADIATION SURVEY AND SITE INVESTIGATION**
426 **MANUAL (MARSSIM) WORKGROUP MEETING NOTES – DRAFT**

427 WEDNESDAY, FEBRUARY 16, 2005

428 ATTENDEES:

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432 U.S. Environmental Protection Agency - Region II: N. Azzam
433 U.S. Nuclear Regulatory Commission - RES: R. Meck
434 U.S. Nuclear Regulatory Commission - RES: J. DeCicco
435 U.S. Nuclear Regulatory Commission - RES: G. Powers (by phone)
436 U.S. Air Force: R. Bhat
437 U.S. Air Force: Major C. Bias
438 U.S. Navy: S. Doremus
439 U.S. Army: D. Chambers

440 MEMBERS OF THE PUBLIC:

441 Cabrera Services, Inc.: S. Hay (U.S. Air Force contractor)
442 Cabrera Services, Inc.: N. Berliner (U.S. Air Force contractor)

443 DISCUSSION

444 Review of chapter 2 resumes. Begin with C. Bias' comments. The work group agrees
445 with a general C. Bias comment that chapter and title headings from Chapter 4 should all
446 begin with verbs, following the example in Chapter 2. Discussion then moves to his
447 comment pertaining to line 26, re-ordering the seven activities of the initial inspection.
448 C. Bias and S. Hay discuss if deciding whether you have enough information to
449 determine whether your material is impacted should be step one of the initial inspection,
450 and they ultimately determine this should be the first step. The discussion also examines
451 the idea that with reference to the simple case in MARSAME, a visual inspection is not
452 always warranted (comment from line 40). This idea is supported by the work group, as
453 are all revisions suggested by C. Bias in this discussion.

454 Discussion proceeds to C. Bias' comments on lines 601 and 602, which spawns a review
455 of the list of potential future use options for disposition of impacted M&E. The work
456 group decides that option # 11, "no alternative action," should be stricken from the list as
457 an option. This course of action is encompassed by option # 10, "Refusal to accept M&E
458 following an interdiction survey."

459 Proceed to N. Azzam's comments. He questions the use of the term "difficult-to-access"
460 in a comment corresponding to line 301 (the term is mentioned on lines 334, 339, and

461 341 of Chapter 2 Rev. 8 ["Interim" Rev. 7]), noting that what may be the proper term to
462 use here is "difficult-to- measure." K. Snead and C. Petullo respond to N. Azzam's
463 comment, defending the use of the term "difficult-to-access" as the proper, intended
464 phrasing. Other minor remaining items are in reviewed, concluding the discussion of
465 comments for Chapter 2.

466 SOP DOCUMENTATION

467 S. Doremus begins discussion of SOP documentation by presenting the idea of an initial
468 assessment SOP flowchart. R. Meck and S. Hay note that the SOP itself provides the
469 necessary documentation, and precludes the need for any additional documentation.
470 Specifics for documentation include:

- 471 • Development of the SOP
- 472 • Application of the SOP (only implement, and only document what's in the SOP)
- 473 • Special case

474 It becomes evident that a definition for SOPs as they are being discussed is needed. Is it
475 an SOP or a standardized survey design (Spanish MARSAME versus a book of SOPs for
476 specific tasks)? D. Chambers asks for clarification regarding the intended scope of an
477 SOP as defined here, and what the SOP is designed to accomplish. R. Meck and S. Hay
478 respond that routine or repetitive surveying activity warrants the creation of an SOP, and
479 that the SOP focuses around instrument selection, surveying techniques, action levels,
480 etc.

481 S. Hay notes that many aspects of Chapter 3 are not currently required to be documented
482 in MARSAME. This lapse in documentation requirements includes the development of
483 action levels, survey unit boundaries, and qualitative and quantitative reviews of
484 instrumentation. Documentation requirements are addressed at the end of Chapter 2, and
485 they are not included in MARSAME guidance again until Section 4.5, Disposition
486 Survey Design Documentation. R. Meck asks if there is need for SOP development in
487 order to conduct the initial assessment? S. Hay responds that the end of Chapter 2 needs
488 to be modified to improve the MARSAME process transitions and continuity through
489 Chapter 4. Chapters 2 though 4 should all include sections for documentation
490 requirements.

491 Discussion moves to specific contents of each chapter (2, 3, and 4). S. Doremus notes
492 that the decision of impacted versus non-impacted, and disposition options and decisions
493 need to be documented in Chapter 2. S. Doremus and S. Hay discuss where the selection
494 of instruments and action levels must occur in the document. C. Petullo suggests the
495 possible addition of an appendix with instructions for writing an SOP. S. Hay responds
496 that the reader can simply be referred to EPA QA/G-6 for writing SOPs. R. Meck
497 comments that SOPs focus on survey design and therefore fit best at the end of Chapter 4,
498 along with documentation for SOP development. S. Hay, S. Doremus, and R. Meck
499 discuss the implementation of SOPs, which includes calibration, measurements, and
500 quality control. They decide that this fits best into Chapter 6. S. Hay provides an
501 example of a group of passengers boarding a plane. Training documents and the SOP

502 describe that everyone must pass through a security check in order to board the plane. S.
503 Hay and S. Doremus further explain that the SOP entails a large document that provides
504 all the information that feeds into the SOP itself, which is smaller and more condensed.

505 Chapter 2 contains the initial assessment, which is minimal yet allows expansion to list
506 whether the materials are impacted, disposition options, and may be expanded to include
507 a description.

508 SEGREGATION

509 Segregation is addressed at two points in the MARSAME process: Chapter 2 and Chapter
510 5. In Chapter 2, segregation is based on the choice of whether to segregate. In Chapter 5,
511 segregation is based on maximizing the measurability of the residual radioactivity prior to
512 measuring as a step in the implementation process. S. Hay, S. Doremus, and N. Azzam
513 discuss that segregation is driven by disposition. As an example of segregation, S. Hay
514 describes the concept of minimizing the amount of M&E brought into radiologically-
515 controlled areas. R. Meck counters that this is really an ALARA concept and is therefore
516 outside of the scope of MARSAME. S. Hay then provides the example of the driller with
517 a truck full of equipment that has been driven to just about every job site he has ever
518 worked on, and how he only turns on a rad. meter when he gets to the specific area he is
519 supposed to be collecting rad. measurements.

520 NORM PRESENTATION

521 N. Azzam begins a small presentation on naturally-occurring radioactive material
522 (NORM), which will be MARSAME Appendix B. Several excerpts from periodicals,
523 text books, etc. are presented with summary information regarding the activity
524 concentrations of NORM in many common construction materials and other media
525 through which the public may be exposed to low-level radiation. The work group agrees.
526 N. Azzam will provide these and additional references for S. Hay to review for appendix
527 B. S. Hay will take this information gathered by N. Azzam and gather more data for a
528 more comprehensive appendix. K. Snead and R. Meck note that a conversion factor
529 needs to be included to convert becquerels per kilogram (Bq/kg) to picocuries per gram
530 (pCi/g). K. Snead adds that it is important to distinguish that the activities listed pertain
531 to finished consumer product content, not raw materials.

532 CHAPTER 5

533 The work group starts discussion for structuring this chapter by reviewing the proposed
534 outline provided in the meeting agenda for Chapter 5. Various work group members note
535 that this chapter will be huge; S. Hay asks the work group to wait until the first draft is
536 written to assess the layout for the numerous sections. The work group agrees. R. Meck
537 and K. Snead comment that portal (truck) monitors are encompassed by the section
538 automated scanning. S. Hay defends the separation of these sections as they use different
539 MDC calculations. R. Meck agrees, noting that truck monitors calculate the rate-of-
540 change of background. K. Snead notes that in situ gamma spec. may be used for either an
541 in toto measurements or as a scanning measurement technique.

542 S. Hay and C. Petullo ask the work group for volunteers to assist as technical resources
 543 for assembling various instrument/measurement method sections of Chapter 5. R. Meck
 544 asks how much of the content of Chapter 5 can be lifted directly from MARSSIM
 545 appendices. S. Hay notes that instruments, temporal, spatial, types of radiation, and a
 546 couple others will be easy. Quantifiability and quality control will both be problem areas.
 547 R. Meck and S. Hay discuss using generic content from MARLAP as well. N. Azzam
 548 notes that he will be able to assist with sections 5.3, 5.5, and 5.6. R. Meck asks if
 549 Cabrera can contact key instrument manufacturers as necessary for free assistance and
 550 work. S. Hay responds that Cabrera can.

551 K. Snead and S. Hay discuss whether to break out Handling M&E in Chapter 5 as a
 552 separate section from Segregation in Chapter 2. R. Meck notes some overlap between the
 553 context of both sections, yet the approach of each section is contrasting enough to justify
 554 drafting these ideas into two separate sections. S. Hay comments on the iterative nature
 555 of segregation, since instrument selection and survey unit boundaries are both related to
 556 segregation, which means that as following the MARSAME process via the flowcharts, it
 557 may be necessary to loop back into Chapter 3 during segregation activities. S. Hay and
 558 R. Meck note that Chapters 2 and 5 both link back into Chapter 3 repeatedly. S. Hay and
 559 S. Doremus note a departure in MARSAME from MARLAP guidance, which does not
 560 require instrument selection prior to survey design.

561 C. Petullo asks Cabrera what else is needed to write Chapter 5. S. Hay voices concerns
 562 regarding referencing as well as the conjunction between chapters. C. Bias suggests the
 563 use of dialogue boxes in the page margins to reference other sections. R. Meck indicates
 564 that he will check if dialogue boxes would be compliant with applicable NRC style
 565 guides. The work group re-examines the order of the sections in Chapter 5, and decides
 566 that Sections 5.10 and 5.11 should be moved up to become sections 5.2 and 5.3 (i.e.,
 567 Direct Measurements with Hand-Held Instruments and Scanning with Hand-Held
 568 Instruments). The work group asks Cabrera if massive amounts of time and materials
 569 will be needed to complete a draft of Chapter 5 – Cabrera indicates no.

570 SCHEDULE

571 C. Petullo prompts work group discussion of tentative scheduling for upcoming
 572 deliverables:

Chapter 6 Outline	Delivered to Work Group 3/14/05
Chapter 6 Draft	Delivered to Work Group at Following Meeting (May 2005)
Complete MARSAME Document Draft	Inter-Agency Review September/October 2005
Complete MARSAME Document Revised Draft	SAB Review April/May 2006

573 K. Snead notes that an outside agency needs to review the draft document before it is
 574 distributed for SAB review. A general reminder is issued to the work group that the

575 document needs to be ready for public comment and in pretty good shape when it goes
576 out for SAB review.

577 C. Petullo continues that the review of content for Chapter 5 is wrapped up for now, and
578 that it is time to move the discussion of the case study SOP up to this afternoon with the
579 intention of ending the meeting early (i.e., foregoing the need to meet on the morning of
580 February 17th). She adds that Chapter 6 could be partially discussed and outlined
581 tomorrow, but the absence of C. Gogolak (the intended author of Chapter 6) at this
582 meeting would place constraints on the value of that discussion.

583 CASE STUDY 2 SOP

584 N. Azzam notes that a reference to MARLAP to account for the propagation of errors
585 should be placed in the text. Along the same lines, D. Chambers and R. Meck request
586 that a reference to NUREG-1507 be placed up front in the MDC calculations sections,
587 explicitly stating that the MDC calculations were derived from NUREG-1507 guidance.
588 This will help make the MDC calculations attachment stand-alone. C. Bias notes that for
589 consistency, the SOP should use the term “clearance,” not “release,” as a portion of a
590 global change to eliminate the use of the term release. R. Meck notes that the terms
591 “shall” and “must” are the correct terms to use in this SOP, but clarifies that they are part
592 of the example SOP and are not to be interpreted as requirements.

593 R. Bhat asks that the chi square variance test be included or referenced for instrument
594 response checks. S. Doremus comments that the chi square is usually included in
595 documentation from the manufacturers, or that otherwise this SOP should reference a
596 separate “dummy” SOP pertaining to instrument set-up. R. Meck adds that a statistics
597 section may be placed up front, as it is in Spanish MARSAME. S. Hay notes that quality
598 control will be addressed in Chapter 5.

599 S. Doremus requests that the terms “radionuclide of potential concern” and “interdiction
600 survey” be carefully compared to the exact terminology in MARSAME for definition
601 consistency. G. Powers agrees that definitions need to be tracked and added to the
602 glossary as applicable, and that it might be helpful to add a small glossary to every
603 chapter. R. Meck and D. Chambers note that without history of fuel leaks, it is correct to
604 ignore alpha-emitters as radionuclides of concern (though they are still radionuclides of
605 *potential* concern). D. Chambers requests that the table in Section 1.0 be updated to
606 make the information more complete (e.g., add beta activity to ⁵⁸Co), and R. Meck notes
607 that the table needs a title.

608 K. Snead asks for clarity in using the term “disposition survey,” and to avoid use of the
609 term “release survey.” R. Meck notes that clearance is a sub-set of release, and that
610 disposition survey is a generic term. C. Bias adds that disposition survey can be broken
611 out and illustrated to include two sub-sets: release surveys and interdiction surveys. It
612 becomes evident that a discussion of how clearance, release, interdiction, and disposition
613 relate to one another is warranted and should be included in this case study. K. Snead
614 suggests that specific references be placed in the document, noting that the case studies

615 will provide examples of disposition surveys, and that the beginning of the case studies
616 will indicate that they are clearance surveys of the disposition options.

617 The table of contents will be revised to note that the “equipment and supplies” section
618 pertains to equipment and supplies for implementation, that this section does not describe
619 the equipment and supplies that the SOP is designed to survey. K. Snead and C. Bias
620 comment that lines 18 to 21 are confusing should be either restructured or deleted.

621 K. Snead notes that MARSAME needs to be added as a reference, and N. Berliner adds
622 that EPA QA/G-6 (Guidance for Preparing SOPs) needs to be added as well. C. Bias
623 indicates that another section of text needs to be re-written from lines 54 to 61 (he has the
624 rewritten text). K. Snead comments on lines 78 to 81 noting that items with inaccessible
625 surfaces either need to be disassembled, or a better resolution is to state that these items
626 are outside the scope of this SOP, and should be characterized using another (dummy)
627 SOP (this dummy SOP should then be added to the references section as well). R. Meck
628 provides an electric drill as an example of an item that should be characterized using a
629 different SOP. C. Bias asks the work group how far guidance should go to this end. For
630 example, a small portion of the total surface area of an adjustable Crescent wrench has
631 inaccessible areas. Should disassembly be required for this small, inaccessible portion of
632 the surface area? As a global revision, every time an additional reference is needed,
633 invent an corresponding additional dummy reference and include it in the references
634 section.

635 The work decided that Section 3.0 (Summary of Method) should be shifted back in the
636 SOP to become Section 10.0, which then moves the section number for sections 4.0
637 through 10.0 up one. R. Bhat suggested moving Section 11.1 (Initial Assessment) to
638 become the new Section 10.0, as currently the IA comes after the equipment and supplies
639 section (10.0). The work group disagreed with this suggestion, and supported keeping
640 the IA section where it is. R. Meck suggested steps to check the applicability of the SOP:

641 1. Check applicability of the SOP
642 2. Collect needed supplies and equipment, set up equipment
643 3. Check physical condition of items to be measured

644 These steps should be used to re-write Section 11.1, and C. Bias suggests that the work
645 group rename the section “Preliminary Preparations,” as the term “Initial Assessment”
646 refers to something else and should not be used here. C. Bias also notes that IDW
647 disposal needs to be added to and accounted for in this SOP. Another dummy reference
648 will be added to the document pertaining to IDW disposal. C. Petullo asks about smear
649 sampling; S. Hay responds that this would also have its own SOP.

650 D. Chambers notes that nuclear powerplant technicians typically need three years
651 experience before they can perform this kind of surveying procedure, so this SOP is
652 excessively detailed in light of the caliber personnel who will be using it. C. Petullo adds
653 that this document doesn’t really look like an SOP. C. Bias states that an SOP is an
654 implementation of a survey – how can this SOP be written without Chapter 5? S. Hay
655 responds that this SOP will be revisited after Chapter 5 is written, and that the SOP will

656 look “right” after Chapter 5 is written. The work group is leaning towards stripping
657 down this SOP in favor of referencing numerous dummy SOPs. R. Meck indicates that
658 he will check various powerplant SOPs in an upcoming audit, and compare this SOP to
659 their working SOPs. C. Bias asks how this SOP is valuable now? C. Petullo notes that
660 the SOP will be tabled for now, and that a briefing on the case study itself will be
661 beneficial.

662 R. Meck comments that there should be three significant figures in the MDCs
663 calculations. J. DeCicco notes that the SAM efficiency pertains to the size of the item,
664 which is not reflected in the MDC calculation. Additionally, units for efficiency need to
665 be included where appropriate.

666 R. Meck presents to the work group a document entitled “Monitoring, Interception, and
667 Managing Radioactively-Contaminated Scrap Metal.” He will try to organize a briefing
668 on this document for the next meeting.

669 **ACTION ITEM:** C. Petullo asks the work group to review this document (Monitoring,
670 Interception, and Managing Radioactively-Contaminated Scrap Metal [EPA, 2004]). She
671 asks K. Snead to contact Deborah Kopsick (one of the authors) about possibly attending a
672 future MARSSIM meeting for a discussion of the document. (The NRC had a liaison but
673 it has changed.) The intention is to see if comparisons can be made between efforts,
674 particularly international SOPs for screening scrap metal.

675 ADJOURN

676
677

Meeting Date: February 17, 2005
Date Prepared: March 25, 2005

678 **MULTI-AGENCY RADIATION SURVEY AND SITE INVESTIGATION**
679 **MANUAL (MARSSIM) WORKGROUP MEETING NOTES – DRAFT**

680 THURSDAY, FEBRUARY 17, 2005

681 ATTENDEES:

682 U.S. Environmental Protection Agency - OSWER/ERT-West: C. Petullo
683 U.S. Environmental Protection Agency - Headquarters: K. Snead
684 U.S. Environmental Protection Agency - Headquarters: L. Bender
685 U.S. Environmental Protection Agency - Region II: N. Azzam
686 U.S. Nuclear Regulatory Commission - RES: R. Meck
687 U.S. Nuclear Regulatory Commission - RES: J. DeCicco
688 U.S. Air Force: R. Bhat
689 U.S. Air Force: Major C. Bias
690 U.S. Navy: S. Doremus
691 U.S. Army: D. Chambers

692 MEMBERS OF THE PUBLIC:

693 Cabrera Services, Inc.: S. Hay (U.S. Air Force contractor)
694 Cabrera Services, Inc.: N. Berliner (U.S. Air Force contractor)

695 ERAMS (ENVIRONMENTAL RADIATION AMBIENT MONITORING SYSTEM)

696 Lowell Ralston of EPA provided a tour of the ERAMS station on the roof of the EPA
697 building.

698 DISCUSSION

699 N. Berliner distributes a three-page handout for the structuring of case study 2 to the
700 work group. N. Berliner then introduced the problem of determining the correct format
701 for case study 2 (not the SOP, but the case study itself, and how it will tie the SOP into
702 the MARSAME process), and the items contained in the handout.

- 703 • Page 1 provides a section-by-section comparison of EPA QA/G-6 outline to E.
704 Boulos' outline for the case studies. This comparison is intended to help illustrate
705 that the sections of the SOP do cover the bases of a full MARSAME case study
706 write-up.
- 707 • Page 2 is a flowchart for expedited implementation of existing MARSAME
708 survey design. This flowchart eliminates many steps in Chapter 2 which are
709 unnecessary once you have a documented SOP, resulting in a much simpler
710 flowchart.

- Page 3 is the current table-of-contents outline from MARSAME Chapter 2, with the sections that can be eliminated highlighted in yellow (these are the sections that correspond to steps that are eliminated from the flowchart on page 2 of the handout).

Work group discussion focuses on the flowchart (page 2). The flowchart starts:

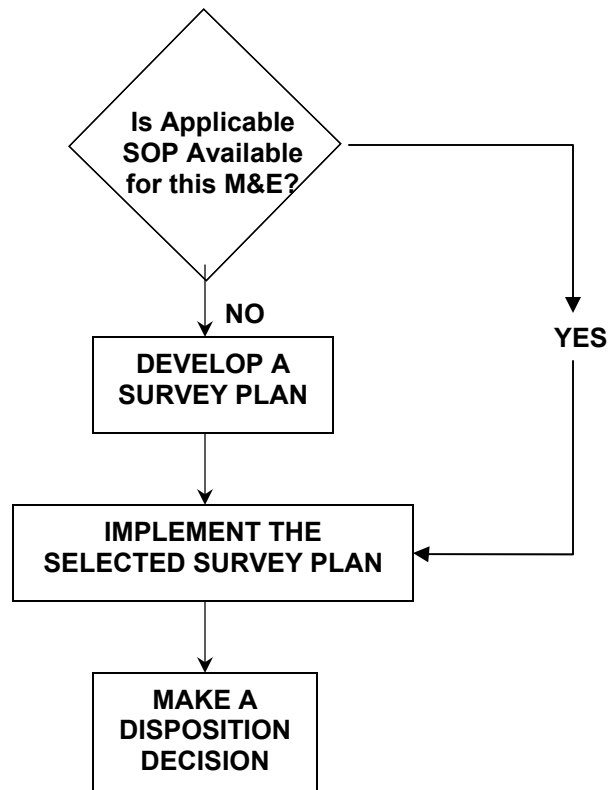
1. Select suitable SOP
2. Is the SOP applicable?
3. Implement SOP
4. Make disposition decision

S. Doremus asks where the SOP is documented. C. Bias responds that the SOP will tell you how and where to document the initial assessment. C. Bias then notes that the SOP should include any necessary documentation of impacted and applicability. R. Meck comments that the SOP describes M&E for applicability and personnel requirements, so the person implementing the SOP can make sound decisions.

Revisions to the flowchart, and the revised format follows:

Chapter 5

Chapter 6



Concepts from flowchart:

- Description: operations, clearance surveys, small items
- There is enough information to categorize the M&E (discuss what it known)
- Is it impacted (discuss why)?

742 • Document initial assessment results (include description of M&E from SOP)

743 K. Snead and C. Bias note that at the conclusion of the flowchart, the SOP puts the reader
744 at the end of Chapter 5/the beginning of Chapter 6. K. Snead asks where to proceed with
745 this flowchart? S. Hay indicates that this flowchart will probably go into the MARSAME
746 roadmap as “the simple case.” S. Doremus and C. Petullo discuss a simple case example
747 as tools leaving a radiologically-controlled work zone, a bucket, a mop, etc. This case
748 study should help illustrate what equipment/situations make good candidates for SOPs.
749 C. Bias adds that the case study should describe what supports conclusions defining what
750 fits the SOP approach. S. Hay replies that case study 2 is designed specifically to as a
751 “how-to” application of an existing SOP. Page 1 of the handout is provided to show how
752 E. Boulos’ table-of-contents outline fits the SOP into the MARSAME process. C. Petullo
753 iterates this as: description of M&E, radionuclides of potential concern, examine
754 equipment, implementation, description of implementation, and use of the SOP.

755 S. Hay notes that the case/objectives/approach have been resolved, yet there remains
756 questions related to applicability (strictly in Chapter 2). S. Hay continues that upon
757 exiting a radiologically-controlled work zone, you have this M&E that needs to be
758 surveyed; go through the table of contents, which refers the reader to each necessary SOP
759 to perform the survey procedure. K. Snead comments that forms will be used for signing
760 tools in and out of radiologically-controlled work zones in a powerplant, and that M&E is
761 tracked in similar fashion for many projects. C. Bias adds that the SOP tells the reader
762 how to document the initial assessment, and it includes many forms. S. Doremus states
763 that he likes this approach of the SOP taking the reader through the steps contained in
764 Chapters 3 and 4. C. Bias adds that this approach of the SOP going through Chapters 3
765 and 4 illustrates in detail how to assess an existing SOP with regards to MARSAME. C.
766 Bias and R. Meck discuss a longer approach of going through Chapters 3, 4, and 5 of
767 MARSAME and rationalizing how portions of the SOP are MARSAME-compliant. R.
768 Meck suggests that a paragraph be added to the case study, stating that Chapters 3, 4, and
769 5 are implicit in the SOP.

770 S. Doremus and R. Meck discuss the radiation safety officer/health physics technician
771 perspective, and that decisions regarding implementation are made by qualified
772 personnel. The parameters of the M&E in question will be examined by someone
773 familiar with the elements in Chapters 3, 4, and 5 that are used to develop the SOP. This
774 individual will then qualitatively decide what is the appropriate SOP to apply and direct
775 the technician conducting the survey accordingly. In addition, a more detailed
776 description of the M&E in the SOP will make decisions easier and allow for a lower
777 threshold of expertise for technicians. C. Petullo reiterates that there must be a statement
778 indicating this in the case study.

779 **ACTION ITEM:** C. Petullo will inquire to A. Williams about example DOE SOPs.

780 **ACTION ITEM:** R. Meck to compare this SOP to various powerplant working SOPs.

781 SCHEDULE

782 R. Meck notes that the schedule for Chapter 1 should be adjusted so that it is finalized
783 when the remainder of the document is complete. As Chapter 1 is the Introduction to the
784 rest of the document, its precise format will not be established until the rest of the
785 document is written. The work group agrees.

786 C. Petullo, K. Snead, R. Meck, and N. Azzam will attempt to juggle funding/schedule to
787 fit into the current budget. S. Hay reminds the work group that Cabrera's pricing
788 increases each June. C. Petullo stresses time for **all** parties in the work group with
789 reference to getting everything done on time. She mentions that unilateral support from
790 work group members and agencies is essential in maintaining work group morale for the
791 project. C. Petullo suggests increasing the work group meetings to five days as necessary
792 in order to allow work group members to complete reading and review of deliverables at
793 the meetings.

794 C. Bias raises issue with the need for the case studies at this point, as many chapters are
795 still drafts or are "in the works," so the guidance upon which the case studies are based is
796 incomplete. N. Azzam and K. Snead defend the case studies in gauging the effectiveness
797 of the chapters by seeing them applied to actual M&E scenarios.

798 C. Petullo states that C. Gogolak is still lined up to write Chapter 6 (he had previously
799 stated that he could not write Chapter 6 until Chapter 4 was written, which it now has
800 been), and that she will contact him off-line.

801 C. Petullo moves to the next work group meeting, which will begin at 1300 on Monday,
802 March 28. The meeting will consist of eight-hour days Tuesday through Thursday, and a
803 half day (starting at 0800 and ending by 1300) on Friday, April 1. This meeting will be
804 held in Washington at EPA Headquarters again. N. Berliner will submit revised case
805 studies 1 and 2 by March 21. C. Petullo will push C. Gogolak for a Chapter 6 outline at
806 for the March meeting.

807 **ACTION ITEM:** R. Meck to arrange for work group members to be able to attend
808 NCRP Annual Meeting "Managing the Disposition of Low-Activity Radioactive
809 Materials," March 30 and 31.

810 The following work group meeting will tentatively begin at 1300 on Monday, April 25.
811 The meeting will consist of eight-hour days Tuesday through Thursday, and a half day
812 (starting at 0800 and ending by 1300) on Friday, April 29. Revised versions of Chapters
813 2 and 4 and the road map will be submitted to the work group for this meeting.
814 Appendices B and C are tentative submissions for this meeting.

815 The following meeting is tentatively scheduled for the week of June 13 to 17.

816 ADJOURN

817

ACTION ITEMS

- 818 All Review “Monitoring, Interception, and Managing Radioactively-
819 Contaminated Scrap Metal” [EPA, 2004]
- 820 N. Azzam Contact Ed Levine from the New York Coast Guard and have him review
821 MARSAME for applicability to their practices
- 822 C. Petullo/V. Lloyd Locate language in the minutes from a previous meeting that if
823 M&E goes into cleaning/remediation as Class 2 or 3, it can then
824 receive a final status survey as Class 2 or 3 M&E
- 825 C. Petullo Inquire to A. Williams about example DOE SOPs
- 826 C. Gogolak Examine language in Section 4.4.3, line 341, and determine if 30% of the
827 mean or 1/6 of the DCGL is appropriate for the calculating the standard
828 deviation. Currently, the text states 30% of the mean, which is potentially
829 a mistake dating back to MARSSIM guidance
- 830 K. Snead Contact Deborah Kopsick about possibly attending a future MARSSIM
831 meeting for a discussion of “Monitoring, Interception, and Managing
832 Radioactively-Contaminated Scrap Metal”
- 833 R. Meck Compare case stuffy 2 SOP to various powerplant working SOPs
834 Arrange for work group members to be able to attend NCRP Annual
835 Meeting “Managing the Disposition of Low-Activity Radioactive
836 Materials,” March 30 and 31
- 837 N. Berliner Submit revised case studies 1 and 2 by March 21
838 Prepare draft minutes from 2/05 meeting
- 839 S. Hay Prepare draft of Chapter 5

840

PARKING LOT

- 841 Class 3 definition in MARSSIM may need adjustment to cover the “simple” case where
842 the relative shift is very large, which may become the definition of Class 3.
- 843 Develop an FAQ on classification to decide when an area is Class 2 and not Class 1 or
844 Class 3.
- 845 Given a classification of Class 2 or Class 3, provide a % scan to release. Determine
846 whether scan coverage can be 0% in Class 3 areas.
- 847 Should MARSAME include prior knowledge (process knowledge) to design a disposition
848 survey using a Bayesian approach?
- 849 Develop a range of expected values for radionuclide relationships that may be used for
850 surrogate measurements.
- 851 Review the structure of Section 3.2.4.
- 852 Where are survey unit boundaries finalized, Chapter 3 or (new) Chapter 4?
- 853 Perform a pilot study to evaluate the MARSAME guidance. Suggested locations include
854 Nellis AFB and Hunters Point Naval Shipyard. OSWER may perform pilot study for
855 chemical contaminants.
- 856 Include the concept of “clean-as-you-go” in MARSAME.
- 857 Develop an FAQ on reliability of individual scanning instruments and other equipment
858 (e.g., global positioning system) used to collect data during radiological surveys.
- 859 Develop tables summarizing the important examples from the Case Studies.
- 860 A Chapter 2 revision comment by S. Doremus from the web site brings up the issue of
861 ROPCs versus ROCs, i.e., the initial versus final list of radionuclides of concern.
862 Chapter 2 states the list of radionuclides of concern may be expanded, reduced, or remain
863 the same based on the results of preliminary surveys.